

Qualheims True Value Seminar

Ten Plant Diseases You Can Learn to Hate (or Love)

Brian D. Hudelson
 Department of Plant Pathology
 University of Wisconsin-Madison/Extension



Ten Plant Diseases You Can Learn to Love
 Powdery Mildews

- Causes
 - Erysiphe spp.
 - Uncinula spp.
 - Phyllactinia spp.
 - Blumeria spp.
 - Oidium spp.
 - Microsphaera spp.
 - Sphaerotheca spp.
 - Podosphaera spp.
 - Brasiliomyces spp.
 - Ovulariopsis spp.

Ten Plant Diseases You Can Learn to Love
 Powdery Mildews

- Hosts
 - Virtually everything
 - Vegetables
 - Herbaceous ornamentals
 - Woody ornamentals
 - Not conifers
- Favorable environment: High humidity



Ten Plant Diseases You Can Learn to Love Powdery Mildews

- **Control**
 - Remove diseased plant material and debris
 - Burn (where allowed)
 - Deep bury
 - Hot compost
 - Reduce humidity
 - Plant less densely
 - Thin existing stands
 - Use resistant cultivars/varieties

Ten Plant Diseases You Can Learn to Love Powdery Mildews

- **Control**
 - Use fungicides to prevent infections
 - Dinocap, dithiocarbamates, myclobutanil, triadimefon, triforine, sulfur or thiophanate-methyl
 - Baking soda (1.5 Tbsp/gal) and light weight horticultural oil (3 Tbsp/gal)
 - Alternate active ingredients (FRAC codes)
 - Apply when humidity >60-70%
 - Apply at 7-14 day intervals

Ten Plant Diseases You Can Learn to Love Fungal Tomato Leaf Blights

- **Causes**
 - Septoria lycopersici (Septoria leaf spot)
 - Alternaria solani (early blight)
 - Phytophthora infestans (late blight)
- **Hosts**
 - Tomato
 - Potato (early blight, late blight)
- **Favorable environment: Cool, wet weather**



Ten Plant Diseases You Can Learn to Love Fungal Tomato Leaf Blights

- **Control (early blight, Septoria leaf spot)**
 - Remove and destroy infested debris
 - Burn (where allowed)
 - Deep bury
 - Hot compost
 - Move tomatoes to new location
 - Plant resistant varieties
 - Space plants far apart
 - Mulch around the base of plants

Ten Plant Diseases You Can Learn to Love Fungal Tomato Leaf Blights

- **Control (early blight, Septoria leaf spot)**
 - DO NOT over-mulch
 - DO NOT overhead water
 - Remove lower leaves and suckers
 - Use fungicides to prevent infections
 - Chlorothalonil, mancozeb
 - Copper
 - Alternate active ingredients (FRAC codes)
 - Apply at 7-14 days intervals

Ten Plant Diseases You Can Learn to Love Fungal Tomato Leaf Blights

- **Control (late blight)**
 - Remove and destroy
 - Infected plants, fruits, tubers
 - Volunteer tomato and potato plants
 - Weed hosts
 - DO NOT use last year's potatoes as seed potatoes
 - DO use certified seed potatoes

Ten Plant Diseases You Can Learn to Love Fungal Tomato Leaf Blights

- **Control (late blight)**
 - Grow resistant tomato varieties
 - "Late Blight Management in Tomato with Resistant Varieties"
(<http://articles.extension.org/pages/72678/late-blight-management-in-tomato-with-resistant-varieties>)
 - Variety selection is not necessarily simple
 - Use several varieties

Ten Plant Diseases You Can Learn to Love Fungal Tomato Leaf Blights

- **Control (late blight)**
 - Use fungicides to prevent infections
 - Chlorothalonil, mancozeb
 - Copper
 - Alternate active ingredients (FRAC codes)
 - Start applications based on Blitecast
(<http://www.plantpath.wisc.edu/wiveqdis/>)
 - Apply at 7-14 day intervals

Ten Plant Diseases You Can Learn to Love Blossom End Rot

- **Cause: Calcium deficiency**
- **Affected plants**
 - Tomato
 - Pepper
 - Eggplant
 - Cucurbits (cucumber, squash, pumpkin)
- **Favorable environment: Drought**

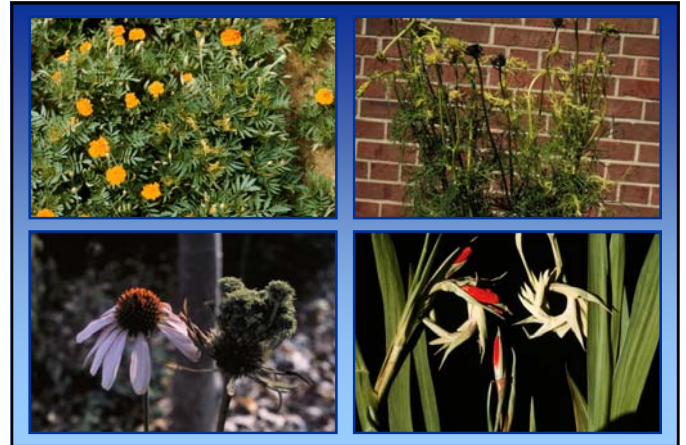


Ten Plant Diseases You Can Learn to Love Blossom End Rot

- **Management**
 - Test soil to determine calcium level
 - Add calcium as needed
 - Bone meal
 - Egg shells
 - NOT lime (usually)
 - Water plants adequately and uniformly

Ten Plant Diseases You Can Learn to Love Aster Yellows

- **Cause:** *Aster yellows phytoplasma*
- **Hosts**
 - Vegetables (carrot, potato)
 - Herbaceous ornamentals (many)
- **Favorable environment:** None
- **Transmission:** *Aster leafhopper*



Ten Plant Diseases You Can Learn to Love Aster Yellows

- **Control**
 - Remove infected plants
 - Use insecticides to control leafhoppers

Ten Plant Diseases You Can Learn to Love Tar Spot

- **Causes:** *Rhytisma americanum*
Rhytisma acerinum
- **Hosts:** Maples
- **Favorable environment:** Cool, wet weather



Ten Plant Diseases You Can Learn to Love Tar Spot

- **Control**
 - **DO NOT** panic
 - Remove and destroy diseased leaves
 - Burn (where allowed)
 - Deep bury
 - Hot compost
 - Use fungicides to prevent infections
 - Copper-containing fungicides
 - Apply at bud break, 1/2 and full leaf expansion

Ten Plant Diseases You Can Learn to Love Scab (Apple and Pear)

- **Causes**
 - *Venturia inaequalis*
 - *Venturia pirina*
- **Hosts**
 - Apple/crabapple
 - Pear
 - Mountain ash
- **Favorable environment:** Cool, wet weather



Ten Plant Diseases You Can Learn to Love Scab (Apple and Pear)

- **Control**
 - Plant resistant varieties
 - “Growing Apples (Pears) in Wisconsin” (<https://learningstore.uwex.edu/>)
 - Remove and destroy diseased leaves
 - Burn (where allowed)
 - Deep bury
 - Hot compost
 - Thin trees to promote air flow

Ten Plant Diseases You Can Learn to Love Scab (Apple and Pear)

- **Control**
 - Use fungicides to prevent infections
 - Chlorothalonil, copper, mancozeb, myclobutanil, propiconazole, thiophanate-methyl, sulfur
 - Alternate active ingredients (FRAC codes)
 - From bud break through the end of favorable weather
 - Apply at 7-14 day intervals

Ten Plant Diseases You Can Learn to Love *Rhizosphaera* Needle Cast

- **Pathogen:** *Rhizosphaera kalkhoffii* (*Rhizosphaera* spp.)
- **Look-Alike:** *Stigmina* Needle Cast (*Stigmina* spp.)
- **Hosts (major)**
 - Colorado blue spruce
 - Other spruces: Engelmann, black, Serbian, Sitka, white (Black Hills)

Ten Plant Diseases You Can Learn to Love *Rhizosphaera* Needle Cast

- **Hosts (minor)**
 - Pines: Austrian, mugo, eastern white pine
 - Douglas fir
 - Hemlock
 - Balsam fir and other firs
- **Favorable environment**
 - Long periods of needle wetness
 - High humidity



Ten Plant Diseases You Can Learn to Love *Rhizosphaera* Needle Cast

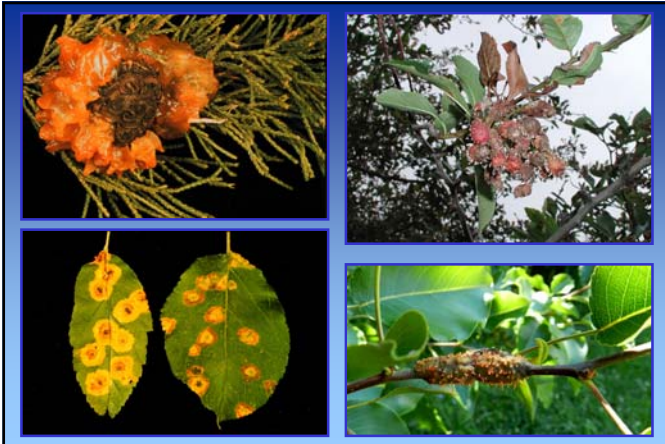
- **Control**
 - DO NOT plant Colorado blue spruce
 - DO NOT crowd trees when planting
 - Thin healthy branches to increase airflow
 - Prevent tree stress
 - Prune diseased branches

Ten Plant Diseases You Can Learn to Love *Rhizosphaera* Needle Cast

- **Control**
 - Use fungicides to prevent infections
 - Copper-containing fungicides, chlorothalonil
 - Alternate active ingredients (FRAC codes)
 - Apply starting at bud break and at 3-4 week intervals thereafter under favorable conditions

Ten Plant Diseases You Can Learn to Love “Cedar-Apple” Rusts

- **Cause:** *Gymnosporangium* spp.
- **Hosts**
 - Junipers
 - Woody rosaceous plants (apple, crabapple, hawthorn, quince, pear!)
- **Favorable environment**
 - Moderate temperatures
 - Wet



Ten Plant Diseases You Can Learn to Love “Cedar-Apple” Rusts

- **Control**
 - Grow only the juniper or rosaceous host
 - Use resistant cultivars/varieties
 - “Juniper Diseases”
(<https://store.extension.iastate.edu/Product/Juniper-Diseases>)
 - Remove galls
 - Decontaminate pruning tools
(70% alcohol, 10% bleach, disinfectants)

Ten Plant Diseases You Can Learn to Love “Cedar-Apple” Rusts

- **Control**
 - Use fungicides to prevent infections
 - Ferbam, triadimefon
 - Alternate active ingredients (FRAC codes)
 - Mid May through mid June (rosaceous hosts)
 - Early July through August (juniper hosts)
 - Apply at 7-21 day intervals

Ten Plant Diseases You Can Learn to Love Black Knot

- **Cause:** *Apiosporina morbosa*
- **Hosts**
 - Prunus species
 - Plums
 - Cherries
- **Favorable environment:** Wet weather



Ten Plant Diseases You Can Learn to Love Black Knot

- **Control**
 - DO NOT plant infected Prunus stock
 - Buy black knot-resistant varieties if available
 - Accolade flowering cherry (Prunus ‘Accolade’)
 - Sargent’s cherry (Prunus sargentii)
 - Amur chokecherry (Prunus maackii)
 - Remove volunteer plums/cherries
 - Prune diseased branches
 - DO NOT use fungicides

Ten Plant Diseases You Can Learn to Love Golden Canker

- Cause: *Cryptodiaporthe corni*
- Host: Pagoda dogwood
- Favorable environment
 - Water stress
 - Heat stress



Ten Plant Diseases You Can Learn to Love Golden Canker

- Control
 - Prune diseased branches
 - Reduce plant stress
 - Consider tree placement
 - Water adequately
 - Fertilize appropriately
 - DO NOT use fungicides for control

Ten Plant Diseases You Can Learn to Love Where to Go for Help

Plant Disease Diagnostics Clinic
 Department of Plant Pathology
 University of Wisconsin-Madison
 1630 Linden Drive
 Madison, WI 53706-1598
 (608) 262-2863
pddc@wisc.edu
<http://pddc.wisc.edu>
 Follow on Twitter @UWPDDC